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DEPARTMENT OF THE NAVY  
CARRIER AIRBORNE EARLY WARNING SQUADRON 12  
PPO SAN FRANCISCO 96601-6400

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IN REPLY REFER TO:

5750  
Ser 020/C-0003

25 FEB 1989

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From: Commanding Officer, Carrier Airborne Early Warning  
Squadron 112

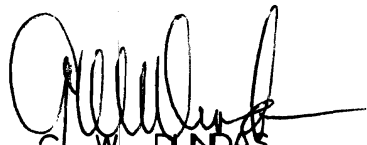
To: Director of Naval History (OP-09BH)

Subj: COMMAND HISTORY FOR CALENDAR YEAR 1988 (U)

Ref: (a) OPNAVINST 5750.12D

Encl: (1) Report on Command History for Calendar Year 1988

1. (C) Per reference (a), enclosure (1) is submitted for the  
calendar year 1988.

  
G. W. DUNDAS

Classified by OPNAVINST C5513.2A  
Declassify on 28 February 1991

Reg # 236 568 319

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Carrier Airborne Early Warning  
Squadron 112  
(VAW 112)

Command History for Calendar Year 1988

1. (U) Command Organization.

a. Primary mission of the Grumman E-2C Hawkeye is to provide all weather, day and night, carrier based airborne early warning and command and control to fleet units.

(1) Secondary missions are:

Air Intercept Control  
Search and Rescue Coordination  
Strike Control  
Surface Surveillance  
Communications Support/Relay

b. Carrier Airborne Early Warning Squadron 112 Commanding Officers during 1988 were:

CDR T. E. Magee, [REDACTED]/1310, 006623-70  
(01 Jan 88 to 18 Aug 88)

CDR G. W. DUNDAS, [REDACTED]/1310, 006818-30  
(18 Aug 88 to 31 Dec 88)

c. Immediate seniors in command are:

Administrative: Commander Fighter Airborne Early Warning  
Wing, U. S. Pacific Fleet

Operational: Commander, Carrier Air Wing Nine

d. Homeport: NAS Miramar, San Diego, CA.

e. Summary of aircraft onboard.

Bureau Number: 162619  
162797  
162798  
162799

There were no aircraft transferred or received during 1988.

2. (C) Summary of Operations.

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a. 1988 Chronology.

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Enclosure (1)

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January

1-31 Based ashore, NAS Miramar  
10-23 FFARP (Detachment to NAF El Centro)

February

1-14 Based ashore, NAS Miramar  
4 LINKEX SOCAL OPAREA  
10 P-7 Tape Evaluation  
11 LINKEX SOCAL OPAREA  
15-29 REFTRA aboard USS Nimitz (CVN 68) SOCAL OPAREA

March

1-2 REFTRA aboard USS Nimitz (CVN 68) SOCAL OPAREA  
3-31 Based ashore, NAS Miramar  
14 LINKEX/LMS Evaluation SOCAL OPAREA  
19-31 NAS Fallon Detachment for weapons training/  
DMDG Project  
29-31 OAST/FIST

April

1-28 Based ashore, NAS Miramar  
1-8 Fallon Detachment  
1-4 OAST/FIST  
15 P-7 Tape Evaluation  
19-20 Command Inspection  
28-30 SOCAL Operation aboard USS Nimitz (CVN 68)

May

1-23 SOCAL operations aboard USS Nimitz (CVN 68)  
9-11 AAWEX  
10-12 EWTP1  
21-23 ATA  
24-31 Based ashore, NAS Miramar  
31 IWSR Training

June

1-9 Based ashore, NAS Miramar  
1 NNBIS  
1-9 IWSR Training  
10-30 COMPTUEX operations aboard USS Nimitz (CVN 68)  
Eastern Pacific  
20-21 Ships Auto-Gridlock System (SGS) Test with  
USS Antietam  
21-22 Outboard Test and Eval with USS California  
27-30 Inport San Diego, CA

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July

1 Dependents Day Cruise aboard USS Nimitz (CVN 68)  
1-5 Inport Long Beach, CA  
6-16 RIMPAC operations aboard USS Nimitz (CVN 68)  
Hawaiian OPAREA  
16-19 Mobile Sea Range Exercise USS Nimitz (CVN 68)  
Hawaiian OPAREA  
20-25 Inport Pearl Harbor  
26-31 K-310-5 operations aboard USS Nimitz (CVN 68)  
enroute eastern Pacific

August

1-31 Based ashore, NAS Miramar  
1-31 POM period  
8-10 Fighter Derby  
18 CDR Dundas relieves CDR Magee as Commanding Officer  
25-26 L-11 LMS testing with USS Nimitz

September

1 Based ashore, NAS Miramar  
2-30 Deployed aboard USS Nimitz (CVN 68) to WESTPAC/IO  
2-12 Transit NORPAC  
13-18 SOJ Dual Carrier Ops with USS Midway  
14-30 Olympic Presence, Sea of Japan  
19-22 In Port Pusan, Korea  
23-30 China Sea/Philippine Ops

October

1-31 Deployed USS Nimitz (CVN 68)  
7-12 In Port Cubi Point, Philippines  
17-20 In Port Hong Kong, BCC  
24 MERLION/Singapore PASSEX  
26 Malaysia PASSEX  
27 Thailand PASSEX  
28-31 IO OPS

November

1-30 NAS Ops deployed aboard USS Nimitz (CVN 68)  
17 EARNEST WILL

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December

1-31	NAS/IO Ops deployed aboard USS Nimitz
6-8	Gulf Overwater Strike Training (GOST)
13-14	Sultan of Oman Passex
19-22	Beacon Flash
31	Inport Singapore

b. Narrative.

(1) VAW 112 started 1988 by continuing turnaround training in January with FFARP. Budgetary constraints forced the program's tailoring from three weeks to two with initial lectures and syllabus hops flown in W-291 from NAS Miramar. These constraints resulted in deleting Fighter Derby from FFARP. Flying the program from NAF El Centro is most desirable - in addition to lower bingo requirements and proximity to the TACTS range, E-2 and fighter aircrew can dedicate their time to developing tactics and a relationship based on more than just "voices on a radio". However, there were a few logistics problems. It was suggested that the field open earlier, 0630 would be optimum. This would allow adequate time for aircraft to taxi and takeoff prior to 0645. Also the 0700 range time was highly inefficient due to the time required to complete the check in procedures.

(2) Ground Support Equipment (GSE) at NAF El Centro was not adequate for E-2 servicing. The current wing jacks at NAF El Centro (P/N 59J6185) did not extend high enough for E-2C aircraft. El Centro's NC8A-1 carts were barely able to hold E-2C vapor cycle power requirements and frequently were overloaded. It was recommended that NC-10 carts with power cables designed to handle increased loads be made available. Also recommended was that NAF El Centro acquire an Oxygen manufacturing capability for the Oxygen Spenn cart (Compressed oxygen servicing) and a shelter to comply with LOX cart storage requirements.

(3) Facilities at El Centro were adequate. Additional telephone and AUTOVON lines were needed, as AUTOVON lines were constantly busy and phones were used almost continuously. Parking was not adequate for the amount of personnel assigned to the hangar. The dirt lot across the street could be designated as a parking area. Unfortunately, personnel were ticketed for parking on the dirt lot.

(4) Training during the balance of January and early February was focused on preparation for REFTRA aboard USS Nimitz (CVN 68). Safety, always the number one priority, was the focus of attention in light of the large number of personnel uninitiated in flight deck operations. CARQUAL of all squadron pilots was accomplished during REFTRA in addition to shipboard damage control training. This was the most productive and relatively painless REFTRA this command has ever been on.

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4  
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(5) Turnaround training continued in March, with early March devoted primarily to preparation for the Fallon, Nevada deployment. During this time, the squadron started evaluation of the Digital Message Device Group (DMDG). The basic training goal was to establish tactical secure and clear communications between Naval Special Warfare (NSW) ground elements and VAW airborne assets. More specific objectives were to determine the maximum ranges using HF, VHF, and UHF frequencies. A short training session allowed all aircrew to quickly gain experience on and expertise in the operation of the DMDG.

(6) The squadron adapted two ICS cords to allow an operator to use the DMDG on whichever radio he had selected. Successful radio communications were established at altitudes as low as 500 feet AGL over water at distances up to 200NM. Overland communications were successful at altitudes of 4,000 feet AGL, with the best results being 16,000 feet AGL, with ranges up to 80 nm. Terrain masking was a major factor in the limited range reception available overland. Due to airspace constraints in the Fallon area, the terrain masking problem was unable to be resolved. Another factor that contributed to the short ranges experienced overland was the relatively low power output of the ground transmitters. Further evaluation of this unit should better establish an accurate baseline data.

(7) Fallon provided the airwing the first opportunity to operate as a complete airwing this turnaround cycle. In order to enhance training, the squadron sought to integrate the Riffer Van, Riffer Lear Jet, Lear B-Band jamming, and the Holly stone EW range into the events coordinated by "Strike U". Some of the specific lessons learned include:

(a) Work load tasking in strike warfare require two E-2's. It might be considered a go/no go criteria to have two E-2's.

(b) There was too much dependence on communications. There is a need for the capability to work autonomously in communications breakdown or jamming scenario. Also the communication plan has to be built into the strike plan with "What if's" and Chattermark procedures defined. Using SAV overland was found to be a way to check navigation, and, in a communications jamming environment, was found to be a way to identify an alternate egress route.

(c) It is important to pick specific, significant times on the timeline and broadcast these on the strike frequency. It is also important to broadcast SAM status on the strike frequency.

(d) Standard phraseology needs to be developed for the air wing. These phrases need to mean the same thing for everyone on every strike and not vary between strike to strike.

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(e) It is important to go directive early. The E-2 needs to commit fighters when it is considered necessary. On every commit the E-2 need to give range and bearing from the fighter to its target. It is also important that the E-2 have abort authority to go along with commit authority.

(f) The Airborne Microwave Refractometer (AMR) unit gave extremely valuable information. Tracking above layers greatly degraded the radar and IFF picture. Descending below the layers indicated by the AMR frequently resulted in good detection. The bottom line learned was trust the AMR.

(g) During overland CSAR efforts it was found very important to stay close to the scene due to terrain masking. The range of the PRC-90 was found to be not much more than 30 miles in this environment. Also it is difficult to track helicopters through low level ingress due to the terrain. However, real world E-2's would be limited in their stationing due to the high threat environment.

(h) Bullseye, or a few Geo points, is the preferred method of building situational awareness (SA) at long range. Cardinal directions (north, southwest, etc.) and range should be used rather than range and bearing from these points. It is also preferable to use reference points out in front of fighters to aid in maintaining SA.

(8) In mid April the command had its annual Command Inspection by COMFITAEEWINGPAC. All of the squadron's spaces were thoroughly inspected, with the squadron receiving an overall grade of "Satisfactory" for its efforts.

(9) The remainder of April was dedicated to preparation for ATA aboard USS Nimitz. Flight hours during this period focused primarily on pilot proficiency in the FCLP and CARQUAL environment. In addition to upgrading the aircraft readiness for ATA, maintenance has concentrated heavily on the qualification and training of the large number of maintenance personnel recently received during this period.

(10) May saw a continuation of turnaround training in SOCAL aboard USS Nimitz. Training centered primarily around cyclic operations, with the air wing putting significant emphasis on "Part-Task" TACPRO training. This allowed practice and testing of small portions of larger tactics, such as Chainsaw and White Fang, within the stringent confines of cyclic operations. Virtually entire tactics, such as Airliner Covert Intercept, Sly Fox, Anti-Ship Missile Defense, and Low/Slow Flyer were executed within a single cycle. The frequent exercise of these tactics brought about many proposed modifications as well as thoroughly familiarizing the aircrew with the preparation and successful execution of the Battle Group's tactical procedures.

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(11) Several opportunities arose to conduct large scale AAWEX's resulting in very effective usage of the Vector Logic and Bar Cap procedures. However, the SOCIAL area restrictions preclude the use of the long-range tactics. VAW 112 normally utilized two airborne E-2's, with coordination being most effective when a single E-2 runs the Administrative net and tanking while both E-2's contribute to the War net. Link 4 was provided to CAP by the E-2 on the same side of the Grid allowing a maximum non-verbal information flow. An emphasis was placed on copilots assuming many administrative duties, such as Tanker King and communications relay, to allow backend crews the time required for C3 and AEW. It was found that this combination worked very effectively.

(12) ASUW efforts centered on WASEX's, primarily using the Romeo Circle tactic. Romeo Circles have proven to be both effective and easy to manage. A much higher Strike Attack Vectoring (SAV) reliability was experienced utilizing this tactic than that found using the Low Level Ingress tactics.

(13) CVW 9 EMOON procedures, which were frequently practiced, emphasized the use of low power tacan together with a grid system, which after an initial position is given by the E-2, allows the aircraft to navigate back to the CV unassisted. This procedure is coordinated and sequenced by the copilot eliminating the need to dedicate an entire E-2 crew to the EMOON recovery at the expense of all other missions. This procedure only requires that the E-2 be within communications and radar range of the recovering aircraft.

(14) With the addition of the Airborne Microwave Refractometer (AMR) unit in three of the squadron's four aircraft, a tactic was developed that allowed the E-2 to pass critical refractivity information shortly after take off, via coded message, to all airborne units. This tactic not only increased the masking capabilities of our strike groups, but also allowed the E-2 to increase its communication ranges to certain units and to optimize its radar coverage by utilizing the natural ducting available.

(15) The end of May was dedicated to Advanced Training Assessment (ATA) aboard USS Nimitz. The remainder of May and June was dedicated to preparation for RIMPAC 88.

(16) After pulling out of Long Beach, VAW 112 began the final phase of RIMPAC 88. This consisted of the opposed transit and beach-head operations of the Nimitz Battle Group, Japanese Maritime Self Defense Force Contingent and Amphibious Task Force in a non-scripted, interactive scenario. Opposition forces included USS Long Beach, USS Worden, Canadian and Australian SAGS, Air Force B-52's, Navy P-3C's, NKC-135's, and significant TACAIR assets. Simultaneous threats from all warfare areas combined with very little intelligence on opposition disposition, provided the most realistic and valuable training that this squadron has ever participated in. Some specific lessons learned by warfare area include:

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7  
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(a) AAW.

1. Long range tactics are extremely difficult for a single CV to execute with a 360 degree threat sector and no defined vulnerability period. Most AAW was completely reactive and unplanned.

2. In an unstructured tanking environment, the E-2C should always recommend to top off the high state or missile CAP first and RTB others. It is better to have a few CAP you can use, than many CAP who are unable due to low fuel and limited armament.

3. Secure communications with CAP eliminates intrusion and seems to help in a COMJAM environment. It should be used whenever possible.

4. During medium to high density raids, it is imperative that AAW C & R and DSA be split into two separate frequencies. Failure to do so will overload the circuit with admin calls. Procedures must be arranged for short, no notice splits.

(b) ASUW.

1. Maintenance of the surface picture, including neutral shipping, continues to be 90 percent of the battle.

2. E-2C involvement in SSC was critical. Most missions dedicated one scope to SSC with the other two handling AAW. The E-2C controlled SSC assets, relayed information to BS, kept an accurate Link 11 surface picture and performed turnover with oncoming E-2C's. Gaps in E-2C coverage frequently forced the entire surface picture to be regenerated from scratch.

3. When it was impossible to dedicate a scope to SSC, the pilot passed information from SSC aircraft to BS, kept a manual surface plot and coordinated with the backend crew when CCOI's/COI's were discovered.

4. Single cycle A-7 and A-6 aircraft were inadequate for long range SSC. By the time they could get out to 250NM and descend to look at a contact it was almost time to RTB. Flex deck and extensive tanking was needed to provide armed SSC at extended ranges.

5. It is crucial to launch the WASEX E-2C earlier than the long range strike package. This allows the WASEX E-2C to arrive on station and get a thorough passdown from the previous E-2C aircraft or conduct and ESM triangulation or SSC effort prior to the arrival of the WASEX package.

6. All targeting to the WASEX strike package should be done on Link 4 and secure voice, using clear voice with base numbers and codes as a backup.

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(c) Strike.

1. It proved necessary on both strikes on the coastal range to have armed SSC aircraft sweep in front of the strike group. SAM ships screening the beach are very effective unless engaged or avoided. Strike groups must have alternate timing plans for situations where it is necessary to fly around enemy ships enroute.

(d) EW.

1. EMCON restrictions on HF forced the utilization of UHF Link 11. This restricted E-2C stationing and early warning. The UHF Link also tied up two of the E-2's six UHF radios, severely limiting the use of control frequencies and the use of ASUW C & R and EW C & R nets, which are both UHF nets. Once the battle group's general location is determined by the enemy, consideration should be given to allow the E-2C to use HF Link 11.

2. The use of the E-2C to control EMCON recoveries time and time again forced the E-2C out of optimum station and reduced or eliminated E-2C participation in critical warfare areas for significant periods of time. When the general position of the CV is known, consideration should be given to having an escort conduct the recovery, thus freeing the E-2C to carry on the war.

(e) Overall.

1. The biggest lesson learned on RIMPAC was that there are simply not enough E-2C's to go around in a war time scenario. While AAW continues to receive the highest emphasis, with SAM shooters of the SAN-6 variety, the E-2C cannot afford to ignore the surface picture at anytime without risking the loss of multiple AAW and SSC assets. A fifth E-2C, with adequate maintenance and crew augmentation, is desperately needed.

2. At the conclusion of RIMPAC, the Nimitz Battle Group participated in a highly successful Mobile Sea Range (MSR) exercise north of Hawaii. The MSR consisted of two days of practice manned raids followed by live-fire unmanned raids. The third day included a HARPOONEX and several air-to-air live firing events. VAW 112 was heavily involved in all aspects of the evolution. Each morning E-2C and S-3 aircraft conducted surface surveillance, finding and reporting traffic that fouled the range. Using the ARC-182's VHF capability, the E-2C directed a sailboat away from the Harpoon target hulk on Maritime Channel 16. Following surveillance, the E-2C played a critical role in validating inbound targets so they could be engaged with missiles. This consisted of detection, correlating Mode III to known missile shots and reporting via Link 11 and voice (TN, true bearing and range) to the Mobile Range Operations Center (MROC) aboard USS John Young. MROC then declared the target valid and

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allowed engagements to occur. The E-2 also played a vital role as a communications link (AUTOCAT) between the MROC and drone shooters. Unbriefed assistance by the E-2 in drone positions and tanker rendezvous also proved indispensable to the success of the evolution.

3. In addition to driving the success of the evolution in the Orange role, blue E-2's also played a key role. During manned and unmanned raids, blue E-2's provided AEW. Blue E-2's also controlled the CAP during the air-to-air missile shoot and provided targeting to the A-6 (SAV) and all three surface shooters (voice true bearing and range) during HARPOONEX. Careful E-2 stationing provided the greatest possible bearing accuracy to the harpoon shooters which resulted in only one miss, this only occurring due to a missile malfunction.

4. Following a Hawaiian inport period in Pearl Harbor, the Nimitz Battle Group participated in a K-310 exercise designed to evaluate Over the Horizon Targeting (OHT) capabilities. The ASUW lessons of RIMPAC were re-emphasized as the air wing conducted extended range War-at-Sea exercises (WASEX's). The critical importance of real time targeting cannot be overstated. Information derived from JOTS/OTIXES alone was insufficient to conduct air wing attacks with a high probability of success. Some real time pre-strike targeting is needed in every case. Of particular note is the relative difficulty of integrating real time targeting data from E-2/P-3 Link 11 into the JOTS/OTIXES data base.

(17) August saw the start of VAW 112's POM period. Like most POM periods of late, VAW 112's was very hectic. Leave, last minute schools, pre-cruise corrosion inspection, fighter derby, retirement ceremonies, change of command, Link 11 tasking to support USS Nimitz's SGS integration, FCLP's and final pack up kept VAW 112 personnel moving and their minds off the impending deployment. The Golden Hawks owe a special thanks to VAW 117 who accepted some tasking destined to add to the squadrons burden and provided outstanding maintenance support, which unfortunately included a last minute engine change to one of VAW 112's aircraft.

(18) On August 18, CDR Geoffrey W. Dundas assumed command at a Change of Command ceremony held in Hanger Six, NAS Miramar. RADM T.A. Mercer, Commander, Carrier Group Seven, was the guest speaker. CDR Terry E. Magee's next orders were to staff, COMCRUDESGRU FIVE.

(19) The Nimitz and Air Wing Nine began its 1988/9 WESTPAC/IO deployment on September 2. CQ off the coast of Washington took longer than expected due to weather. In this area an E-2 working close to Bingo needs to decide quickly whether to bingo or accept blue water operations. Fields at McChord and Whidbey are suitable, however, the JP-4 at McChord is a problem. Early morning weather at both fields was poor at best.

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10

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(20) The transit via NORPAC was extremely successful. CQ was conducted during both day and night during the transit. Operations in the Sea of Japan (SOJ) provided excellent training for all aircrew. Several strike planning teams, involving many of the squadron's junior officers, developed contingency plans during the Battle Group's Olympic presence. Together with an interesting inport period in Pusan, Korea, with an opportunity to attend several Olympic events, this made the time spent off of Korea exciting. The Soviet SOJ air reaction, however, was not as intense as expected. Conclusion of SOJ and dual CV operations at the beginning of October were relatively uneventful. Preparation and execution of the INCHOPEX's, however, kept the aircrew busy.

(21) Training in the Cubi OPAREA provided valuable experience to all aircrew, particularly in the area of strike execution. Soviet reaction to our presence in the South China Sea (SCS) was, to say the least, disappointing. The Nimitz was not overflown during the entire time in the SCS. The highly successful Passex's with Singapore, Malaysia and (to a lesser extent) Thailand proved to be October's high point. Interaction with the USS Vinson Battle Group, though limited, closed out a moderate month of activity.

(22) Some specific lessons learned during the Passex's and interaction with the Vinson were:

(a) Alert War-at-Sea strikes are very difficult if there is no accurate targeting data available. Birdog and dedicated SSC aircraft are a must prior to any War-at-Sea strike.

(b) E-2 UHF coordination with Japanese Air Defense through their Direction Centers (DC) was very good overall. On several occasions identifications from "Dialect" (DC) prevented the necessity of intercepting tracks with CAP. Overall, "Dialect" received more information from the E-2 than the E-2 did from him, but the Memorandum of Understanding (MOU) was beneficial to both sides. As this was the first time the MOU was used its long range effects are unknown, but it is felt that it will allow for a much closer and more coordinated working relationship between surface units and air units of both US forces and Japanese forces.

(c) Real world CAP and intercepts continue to show that identification of contacts passed secure or clear should be via NATO callsign. The codewords on the card of the day should be reserved for passing probable identifications based on ESM or I & W. When a codeword is used for visual identification, it is immediately compromised. It is important to note that the Japanese did not use the NATO callsigns. The Japanese used, and only understood, the number designation (ie. IL-38, TU-95). Units working with the Japanese must be ready to translate.

(d) There was very little integration of the air picture with Korean Air Defense. The South Korean's appear to rely heavily on the Seventh Air Force.

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(e) On station, the E-3A was only in the Link 11 net once while E-2C's were airborne. Joint Link 11 operations did not seem to be priority with AF, AWACS or the Seventh Air Force.

(f) Integration with the EP-3 was exceptional. The EP-3's called as soon as they were airborne and the SPRAC net always worked.

(g) ALQ 108 was invaluable in SOJ operations.

(h) ALR 73 proved valuable with many E-2 ESM intercepts. This sensor provided initial Battle Group detection and identification on aircraft, surface ships, and in one case a surfaced Foxtrot class submarine.

(i) It is critically important that the entire Battle Group agrees on No Fly and Buffer Zone boundaries. This is easy when boundaries are in relation to a well defined coast, but when multiple small islands are included, it becomes difficult. Guidance must be understood and briefed correctly by CVIC. A defined number of points that can be entered into the controlling unit's (E-2) systems and briefed to aircrew is required.

(j) Flight operations conducted off Singapore were restricted to a 60 nm circle which proved to be much too small for the flight activity of an entire airwing. The air wing was lucky to get away without any flight violations. The air wing must consider vastly reducing flight operations not necessary for actual exercises. Also, sending a representative to Singapore early to coordinate is highly recommended.

(23) The AMR Recorder Processor units installed in the squadron's aircraft were all passed off the ship in October for repair or replacement. Problems ranged from components not powering up, not releasing from display test mode and not releasing from initialize mode. No spares or repair capability exists on board. The ship's request for cannibalization of replacement assets was denied by COMNAVAIRPAC.

(24) After a significant delay in final installation, approval was received in early October for placement of ULQ-16 control boxes in the cockpit during carrier operations. Significant system troubleshooting followed. A turbocharger card and power supply were replaced inside the processors themselves, however, the majority of problems centered around the apparent failure of the ULQ-16 to receive inputs from the ALR-73. Several signal combiner modules were found to have blown fuses or to be inoperative. Additionally, the 28 volt DC power plugs attached to the receptacle in the forward equipment compartment have been damaged numerous times by human traffic. The power plugs protrude well into the narrow passageway. Redesign of this arrangement is mandatory. By the end of the month only a single unit could be made operational and functional testing

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12

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was only beginning. Despite the delays, the squadron is confident maintenance problems will be overcome and optimistic that the ULQ-16 will help resolve many of the identification ambiguities produced by the ALR-73.

(25) The Nimitz Battle Group arrived in the North Arabian Sea (NAS) at the beginning of November, making frequent sorties into the Gulf of Oman, remaining in the NAS until after mid-December. Multiple IL-38 MAY and Pakistani Atlantique intercepts, and frequent PASSEX's with allied warships proved to be the highpoints of the Battle Group's stay in the NAS. Proficiency was maintained through multiple SSC, Sledgehammer, Wolftrap, AIC, DACT, JAMEX, and AAWEX events.

(26) Extensive evaluation of the ULQ-16 in the E-2 and the TACREL POD for battle group operations was conducted with much success and a good data base for further evaluation was established.

(27) Severe atmospheric ducting and layering were experienced throughout the NAS period making AEW difficult. Most of the ducting and layering occurred below 6,000 feet, however, there were occasional high altitude ducts from 16,000 to 20,000 feet. The AMR units, which were all inoperative after the first month of deployment, would have been an excellent asset to optimize stationing in this difficult environment.

(28) The Golden Hawks of VAW 112 finished the year with 2,795 flight hours, bringing the total to over 30,000 mishap free hours. Of those hours, 1923 were while embarked aboard USS Nimitz. The squadron logged a total of 1230 carrier landings with an average grade of 3.39 and a boarding rate of 97.1%, the third highest in the air wing. The squadron contributed to weapon system development by submitting 10 BOSS changes, 9 Software change reports, 6 MILCAP/Beneficial suggestions, and 1 RAMEC. Contributions to tactical development include 10 TACPRO changes, 2 TACPROs rewritten, 8 new TACPROs, 37 TACMAN changes, 10 NWP changes, and 7 Fleet Tips. On the down side, the six year FOD-Free record ended in August on a night FCLP flight at NAF San Clemente when a small piece of concrete was ingested from one of the normal operating surfaces the aircraft used that evening.

(29) 1988 was a highly successful year for the Golden Hawks of VAW 112. The squadron contributed greatly in improving the entire Battle Group's warfighting capabilities through the development and refinement of the Battle Group tactics. A Strong emphasis on safety led to the passing of 30,000 accident free flight hours, while training, and a strong professional attitude, kept all of the aircrews well ahead of their contemporaries. With a continuing effort, the Golden Hawks are looking forward to an equally productive year in 1989.

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13  
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